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NEWS

Droughts developing more rapidly says global study

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19:01 (UTC+1) on Thu 13 Apr 2023

For the first time a new study has confirmed droughts across the world are developing more rapidly as a result of climate change.

The international study identifies flash droughts – which intensify in a matter of weeks – have become more frequent since the late 1950s over 74% of the world's 33 global regions, especially those over North and East Asia, the Sahara and Europe.

The Met Office's Dr Peili Wu is one of the paper's authors. He said: "The transition to more flash droughts is being driven by a combination of rainfall deficit along with amplified rates of soil moisture loss."

The paper highlights that the transition from slower-onset droughts to flash droughts is projected to expand to most land areas. This transition will become most pronounced with higher rates of global greenhouse emissions.

How do droughts begin?

Obviously, a drought begins with a period with a relative absence of rain or snow. However, increased temperatures and sometimes stronger winds can rapidly amplify the loss of moisture in the soil, exacerbating the speed of the drought's onset and impacts. This rapidity can lead to the creation of a flash drought. Droughts in their many forms can last for different time periods, from weeks to decades.

Flash droughts haven't always been widely recognised. Among the first to gain prominence were events in 2012 in the United States, and 2013 in China. Dr Wu added: "Like many flash droughts these events caused massive impacts with economic losses and extensive damage to crops."

The researchers also looked at how droughts will change in the future. They compared the results with both moderate and very high greenhouse gas scenarios. In both scenarios, future projections show an increase in the speed of drought development in most regions and an increase in the number of flash droughts compared to slower forming droughts.

This research provides new insights into how droughts have been changing in different regions around the world and the role of human-induced climate change in driving an increase in drought onset speed. The underpinning research is fundamental to understanding the changing characteristics of droughts and to inform existing drought monitoring and warning frameworks.

A global transition to flash drought under climate change

The paper – *A global transition to flash drought under climate change* – has been produced by an international collaboration featuring scientists from China, the UK and the US. The paper will be published in the journal Science. The lead author is Professor Xing Yuan of Nanjing University of Information Science & Technology.

The research is part funded by the Climate Science for Service Partnership China (CSSP China) project, a collaborative climate science initiative between research institutes in the UK and China. CSSP China is part of our Weather and Climate Science for Service Partnership (WCSSP) programme, supported by the UK Government's Newton Fund.

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